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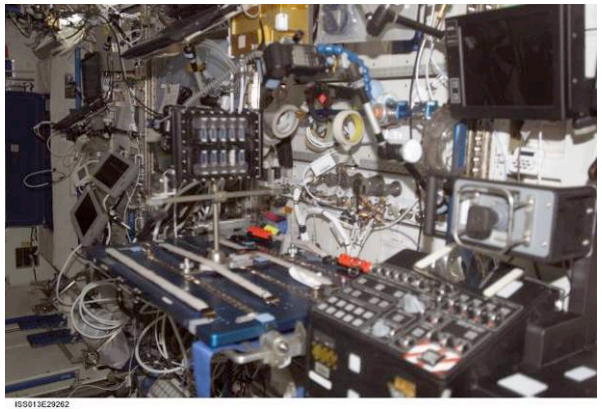
On-Orbit Status
BCAT-3 /BCAT-3+

Accomplishments

- Verified successful 12A to 12A.1 transition at TSC.
- Cathy Frey is pursuing increasing AA battery count from 14 to 36.
- Submitted OCR 67 which adds new procedure 2.017 to the procedure database. This procedure is for manually photographing Samples 1-6 at the 6-month and 1-year post homogenization intervals.
- Submitted OCR 68 which is to request to have the CGBA/BCAT procedure performed to un-stick the tiny mixing magnets in Samples 3, 5, and 9.
- W. Meyer presented why this work is important at an international colloids Workshop at the New York Academy of Sciences; support gathering in U.S. and Europe.
- Weekly team meetings.



BCAT-3+ Sample Module and work area on the International Space Station.

Plans and Issues

- In Increment 13 we did not get pictures of Sample 3 (which has a stuck mix magnet and which is very important scientifically). Told we cannot use MELFI. Need CGBA to cool BCAT-3 samples and unstick mix magnets in sample cells. Waiting for CGBA to get fixed. CGBA service kit is being sent up on 12A.1, and it will take a while to get it fixed and tested. BCAT is priority 3 and there are priority 1 activities that don't have enough time to be run. This puts BCAT-3 on hold for now.

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BCAT-4

Accomplishments

- Funding found for Paul Chaikin (NYU) who is supplying three of the ten BCAT-4 samples.
- BCAT-4 2-Pager for Increment 17 sent in.
- Lab Safety Permit – almost done for Bldg 333, but will need to add Amber as "operator".
- Toxicity Assessment being prepared for BCAT-4 (sample materials now confirmed for Chaikin via email from Andy Hollingsworth at NYU)
- Baselined BCAT-4 Assembly Drawings.
- Receiving and awaiting both commercial and fabricated parts for flight build
- Provided team inputs to BCAT-4 risk list
- Collected/reviewed data for BCAT-4 flight samples in preparation for data submittal to JSC toxicologist for assessment.
- Began to create Ph III safety data package based on BCAT-3 Ph III SDP.
- Weekly team meetings.

Cathy Frey, Peter Lu and Sandy Magnus at BCAT Crew Training September 27, 2006.

Plans and Issues

- Science Status SRD – awaiting PI response.
- QA / Risk Management Risk list finished – monthly risk review will be at Dec 6th weekly
- Project Level / Contract Status
- DO-086 will have a one-month no cost time extension - Dec 31st out to Jan 31st.
- BCAT-4 team pursuing late access for BCAT-4 sample module to retrieve "glassy" samples which jam upon re-entry and preserve microgravity crystal structure.

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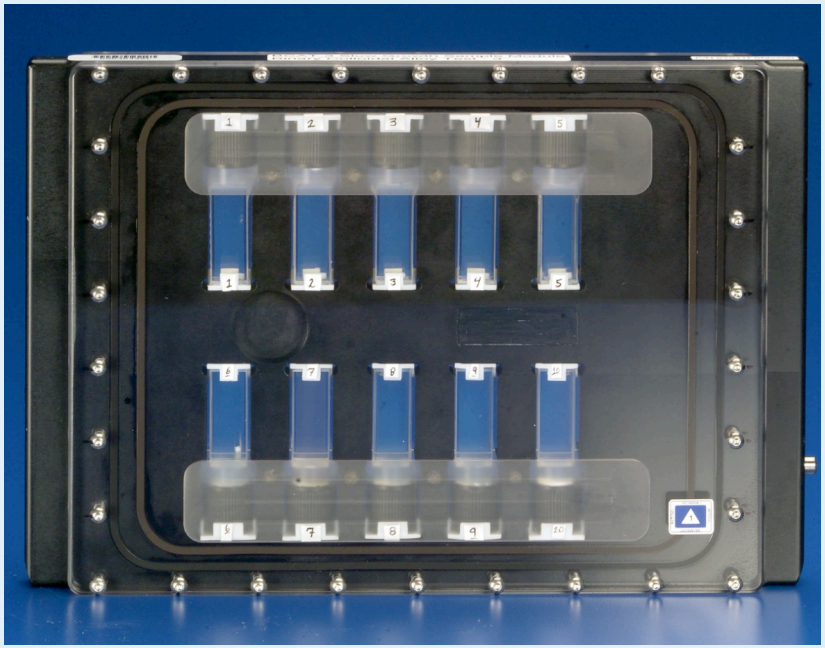
Hardware
BCAT

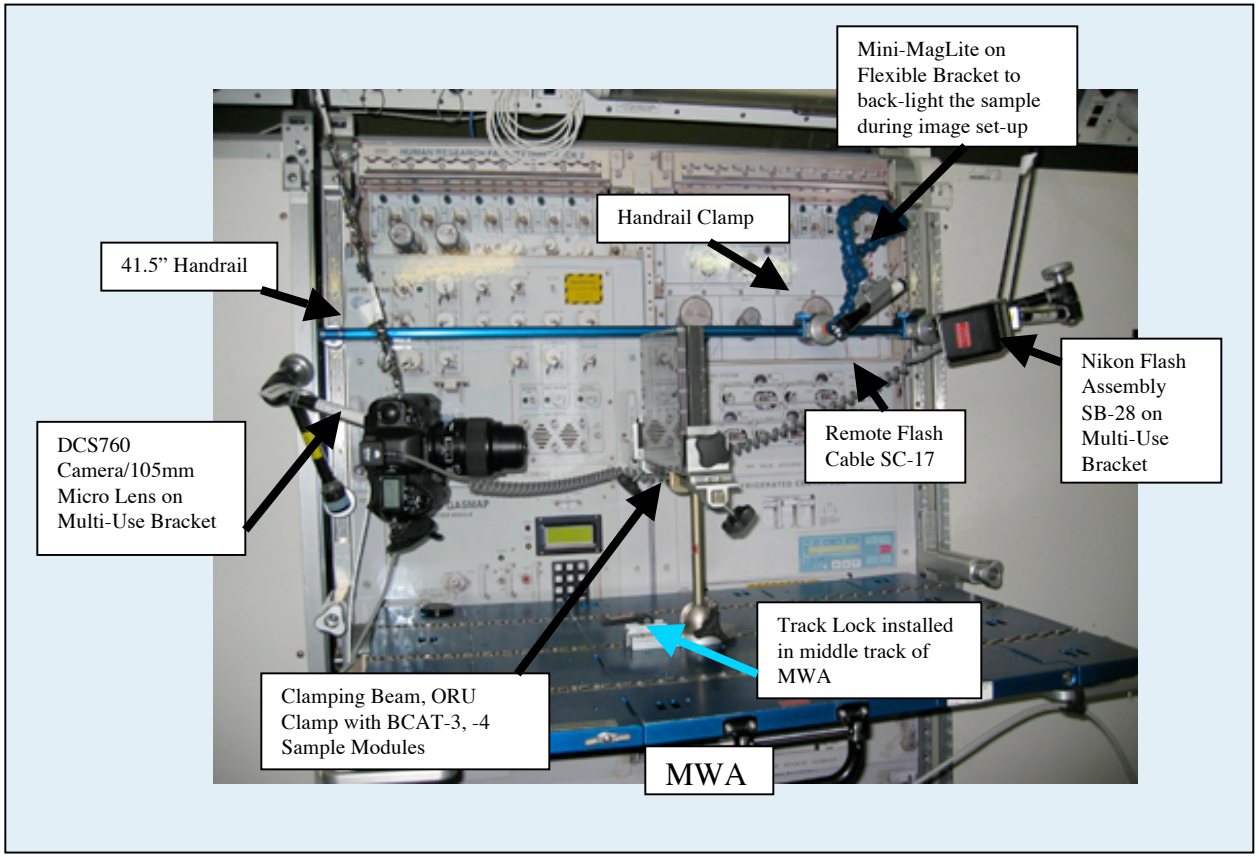


BCAT Slow Growth Sample Module

BCAT Magnet and Magnet Keeper

Hardware
BCAT

ISS-Supplied Hardware and BCAT-3 and -4 set up on the Maintenance Work Area (MWA)



- BCAT-3 Samples 1 through 6 and BCAT-4 Samples 1-10 require the camera, flash and components, DC Power Supply, EarthKAM software and A31p Laptop for photography.
- BCAT-4 will use the Mini-MagLite taped to the flash to photograph crystals if they are found in Samples 8, 9 or 10
- Camera is run using ISS power.

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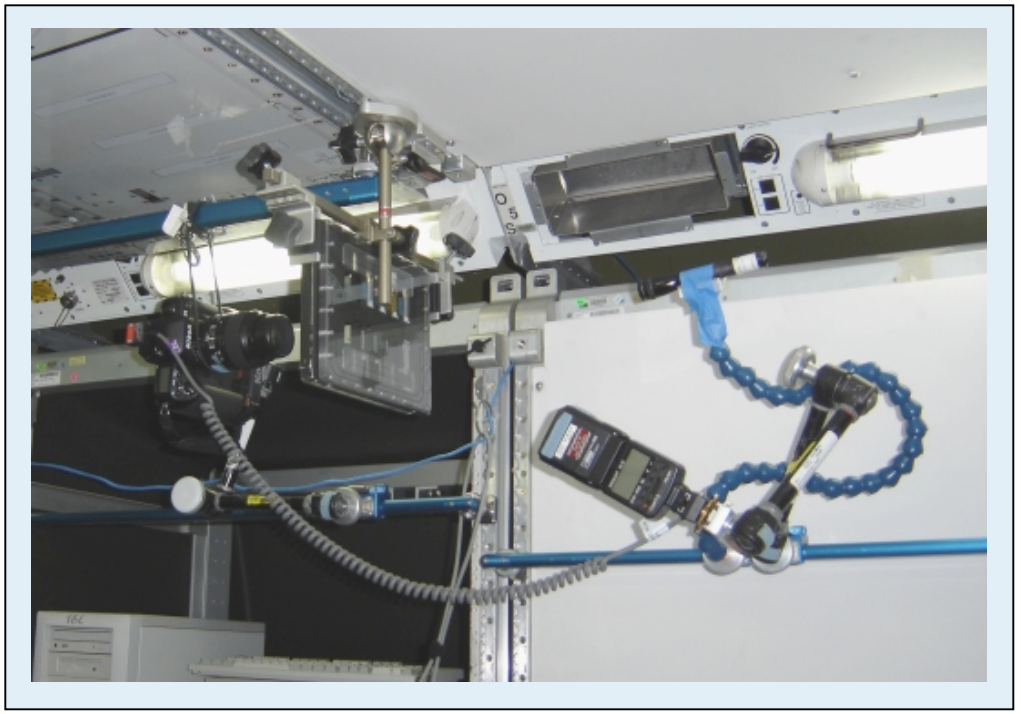
Hardware
BCAT

Alternate set-up for BCAT-4 and ISS-Supplied Hardware

- The BCAT-4 experiment will include long-term photography using EarthKAM. In order to alleviate MWA usage time an alternative set-up is being considered
- This set-up does not use the MWA surface but only its components which include an additional multi-use bracket and clamp and handrail
- The Slow Growth Sample Module in the ORU clamp is attached to a seat-track on the ceiling and the camera and flash are each attached to handrails by multi-use brackets
- The 6-month and one-year photos will utilize the MWA surface as in previous runs



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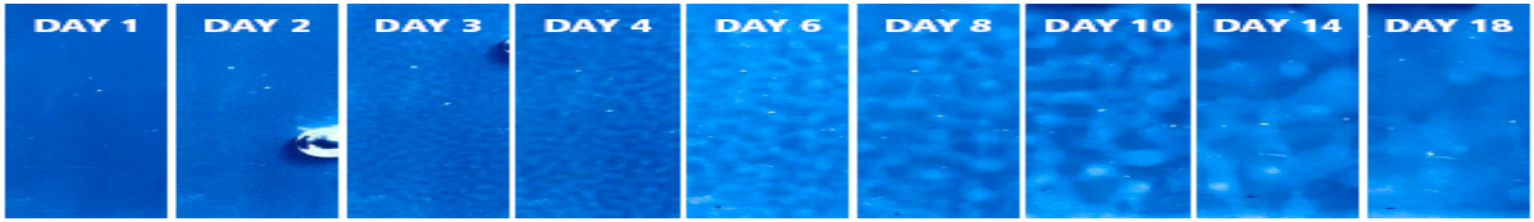
Operations Scenario
BCAT



EarthKAM Automated Photography

Once manual photos are taken and set-up is deemed optimal, the EarthKAM software will automatically take photos of samples 1-7 per the Camera Control File (CCF)

For Samples 8-10, we are not sure when or if crystals will form; a crystal sample check is desired three days post-homogenization and then periodically over time

There may be long-term automated EKAM photography for Samples 8-10 if exciting things are happening in the crystal samples

Daily Status Checks

Per crew procedure 2.002 BCAT-4 CAMERA SETUP STATUS CHECK, crew will check BCAT-4 set-up once a day for proper alignment and focus

Astronauts Mike Foale, Mike Fincke, and Leroy Chiao photographing samples for BCAT-3

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On-Orbit Stowage
BCAT

BCAT-3 Sample Module on the International Space Station. **(Long axes of couvettes must be lined up with the Z-axis of the ISS)**

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Movie Clip of BCAT-3